

REMARKS

This amendment is in response to a non-final Office action (Paper No. 5) dated December 12, 2002. Applicant has amended claims 1-5 by this Amendment. Claims 1-18 are pending in this application.

The Examiner has rejected claims 1-7 under 35 U.S.C. § 112, second paragraph. The Examiner insists that the use of the term “contact portions” is indefinite because there are two contact portions claimed. Applicant has amended the claims so that reference numeral 12 is claimed “first contact portion, reference numeral 126 is the “second contact portion” and reference numeral 132 is the “third contact portion”. Applicant submits that claims 1-7 as amended now comply with all the statutory requirements of 35 U.S.C. § 112, second paragraph.

The Examiner has rejected claims 1, 2 and 8-11 under 35 U.S.C. § 102 (b) as being anticipated by Buican, U.S. Patent No. 5,627,577. Applicant respectfully traverses. In the rejection of claims 1, 2 and 8-11, the Examiner states that reference numerals 130 and 131 are the equivalent of Applicant’s spring elastic members 132. Applicant respectfully disagrees. Buican ‘577 pertains to using a flexible cable 80 to electrically connect to an ink cartridge on a carrier. Column 5, lines 26-29 of Buican ‘577 state that contact spring member 130 and contact springs 131 are made of resilient silicon rubber which is non-conductive while being physically joined. Applicant submits that Applicant’s elastic members are electrically conductive as stated in lines 7 and 8 of Applicant’s

independent claim 8 and also independent claim 1 as well as both electrically and physically isolated from each other. Furthermore, the Examiner's attention is drawn to column 6, lines 28-36 of Buican '577 which state that contact portion 84 and contacts 85 are part of flexible cable 80. Column 5, line 64-column 6, line 2 of Buican state that contact portion 84 and contacts 85 which are electrically conductive are lodged in between contact springs 131 and contact surface 44 of ink cartridge 40. Because contact portion 84 and contacts 85 of Buican are not elastic and are not connected to a printed circuit board, Applicant submits that the Buican patent is more like FIG. 2 of Applicant's invention illustrating rubber elastic material 30 with projections 32 and contact portions 12 that are used to sandwich the electrically conductive contact portions 22 rather than FIGS. 3 and 4 of Applicant's invention. Applicant submits that FIG. 2 of Applicant's invention is illustrated to illustrate the deficiencies that Applicant seeks to overcome. Applicant submits that it is the structure in FIGS. 3 and 4 of Applicant's application that is claimed. Therefore, Applicant submits that the structures illustrated in the Buican patent are entirely unrelated to Applicant's invention.

Furthermore, Buican states that contact spring member 130 and contact springs 131 may have the same resilience or different resiliences. There is no teaching in the Buican patent whether the resilience of one contact spring 131 has no effect on the resilience of neighboring contact springs. However, as is clear from the structure illustrated in FIG. 4 of Applicant's application as well as paragraph 24 that each contact portion (which in Applicant's invention is electrically conductive) has a constant contact force and the force of one contact portion 132 in Applicant's invention will have no effect on the contact force of neighboring contact portions 132. Buican '577 fails to disclose

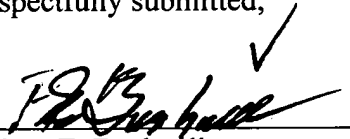
such a feature. Therefore, Applicant submits that Buican is unrelated to Applicant's claimed invention and Applicant respectfully requests the allowance of all claims as a result.

The Examiner has allowed method claims 16-18. Applicant is appreciative of this allowance.

No fees are incurred by the filing of this Amendment.

In view of the above, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. Should any questions remain unresolved, the Examiner is requested to telephone Applicant's attorney.

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1 1. (Amended) An electrical contacting apparatus in an ink jet printer, for contacting [the]
2 respective ones of a plurality of electrically conductive first contact portions of an ink cartridge with
3 [the] corresponding ones of a plurality of electrically conductive second contact portions of a printed
4 circuit board installed on a carrier, in order to electrically connect the ink cartridge to [the] said
5 printed circuit board, said ink cartridge being configured to be mounted on said carrier, said
6 apparatus comprising: [carrier on which the ink cartridge is mounted, the apparatus comprising a
7 plurality of spring elastic members corresponding to the contact portions of the ink cartridge,
8 wherein]

9 a plurality of electrically conductive spring elastic members, each [of the] one of said
10 plurality of electrically conductive spring elastic members on said printed circuit board [comprises]
11 comprising:

12 a third contact portion [which] that forms electrical [contacts a] contact with a
13 corresponding one of said plurality of said first contact [portion] portions of [the] said ink
14 cartridge;

15 a base having one end electrically connected to a corresponding one of said plurality
16 of second contact portions [the printed circuit board]; and

17 a connection portion electrically and physically [connected] connecting [to] said third
18 [the] contact portion [and the] to said base, said connection portion providing an elastic
19 restoration force between said third contact portion and said base, each one of said plurality
20 of spring elastic members being formed from an integral elongated member having a bent

21 portion, said bent portion forming said connection portion [for providing an elastic
22 restoration force between the contact portion and the base].

1 2. (Amended) The [electrical contacting] apparatus [in an ink jet printer] of claim 1, further
2 comprising a housing for receiving [a] said plurality of spring elastic [member] members and
3 maintaining [the] said elastic force [of the] between each one of a plurality of third contact [portion]
4 portions and a corresponding one of a plurality of bases for each spring elastic member [of the
5 received spring elastic member with respect to the base of the received spring elastic member].

1 3. (Amended) The [electrical contacting] apparatus [in an ink jet printer] of claim 2,
2 [wherein the] said housing [has] having a plurality of [space] spaces for receiving [the] respective
3 ones of said plurality of spring elastic [member] members and providing electrical and physical
4 isolation between adjacent spring elastic members, said housing comprising [and] a plurality of
5 [window] windows [for] exposing [the] respective ones of said plurality of spring elastic [member]
6 members to the outside [is formed on an opening of the housing on the side of the space].

1 4. (Amended) The [electrical contacting] apparatus [in an ink jet printer] of claim 1,
2 [wherein] one end of [the] each one of a plurality of bases [base is] being electrically connected to
3 the printed circuit board by soldering to form one of said plurality of second contacts.

1 5. (Amended) The [electrical contacting] apparatus [in an ink jet printer] of claim 1,

2 [wherein the] each one of said plurality of spring elastic [member is] members being formed of
3 phosphor bronze plated with nickel, and [the] each one of said plurality of third contact [portion]
4 portions [of the spring elastic member is] being further plated with gold.